

NEW YORK NEUROLOGICAL SOCIETY.

A regular meeting was held October 12, 1883, the President, Dr. WILLIAM J. MORTON, in the chair.

THE NEUROTIC ORIGIN OF PROGRESSIVE ARTHRITIS DEFORMANS.—Dr. LEONARD WEBER read a paper in which he briefly recapitulated the symptomatology and etiology of the disease, and stated his views concerning its nature. He said that, among the comparatively large number of cases of arthritis deformans which he had seen in the course of the last twenty years, he could not but recognize sorrow and grief, fright, irritation, and exhaustion of nerve-centers by sexual indulgence and the leading of a dissolute life—factors just as potent in producing the disease as rheumatic influences, if not more so. Again, remembering the symmetrical appearance and progress of the disease in most cases, no more plausible explanation seemed possible than the supposition of causes located in the central nervous system. The neuralgic and tropho-neurotic symptoms also supported this view, though it was not to be forgotten that in a spine stiff and deformed by arthritis there might easily occur changes of innervation producing neuralgias and tropho-neurotic alterations secondary in character. Finally, the negative results which he had had in treating polyarthritis deformans after the usual anti-rheumatic method, with iodides, colchicum, etc., and, on the other hand, the very positive results obtained in similar cases by the galvanic treatment of the central nervous system, combined with a generous diet and the persistent administration of cod-liver oil and iron, had led him to believe in the neurotic origin of the disease in many cases. It was through the failure of

the old method that he first became convinced of the erroneousness of the conventional opinion of the rheumatic or gouty origin of this formidable malady. Up to the present time no autopsies had been made with reference to the condition of the nerve-centers in this disease, and it would be a fit subject for future research to find the changes in the cord, presumably in the anterior horns, which might induce certain forms of arthritis deformans.

With regard to the main features of the disease he had this to say: As a rule it began and developed very slowly, without any other symptoms at first than pains in one or more joints, which came and went either spontaneously or after exertion. Not infrequently the patient complained at this early stage of an unusually tired feeling in the joints. The pains were neuralgic in character, circumscribed or diffused through the limb. In the peripheral form, the joints of both hands and feet; in the central variety, the hip, knee, and spine, were the parts affected. In the course of time a great deal of stiffness and discomfort were experienced. The joints were enlarged and became unshapely by the proliferation of hard, osseous protuberances on the outer surface of the swollen epiphyses, and creaking or cracking in moving or handling them was perceptible to the patient as well as to the physician. The adjacent soft parts, particularly the muscles, showed, in a comparatively early stage of the disease, a degree of atrophy not at all commensurate with their passive condition alone, but much more due to peculiar nutritive changes of neurotic or myotic origin.

In the peripheral form, the disease affected the joints almost symmetrically on both sides; in the central form, the advance was irregular. In one case he had seen it remain stationary in the hip joint for many years, but attacking some joints of the fingers and toes at last. In another case, that of a female patient about thirty-five years of age, the upper part of the body only was affected. He had now a case under observation where nearly all the joints in the body were badly affected when he first saw the patient, who had been a helpless cripple for many months.

The disorganization of the shoulder, knee, and particularly the hip, led often to a considerable shortening. In one of his cases, still under observation, the shortening of one lower limb amounted to nearly three inches.

In the spinal vertebræ ankylosis was more quickly developed by the disease than in other parts of the body. One of his patients could neither bend nor turn her head when he first saw her, the entire spine being stiff, but there were no symptoms of compression, or even of remarkable irritation of the cord. The disease was slowly but steadily progressive; while it might remain stationary for a length of time, exacerbations were sure to follow. Fever or other great constitutional disturbances he had not noticed in its course. In a female patient, aged thirty-seven, he had found the urine to have a specific gravity of 1,026 containing some sugar, and phosphates in abundance. Her mother had diabetes, and was a sufferer from *arthritis deformans* at the same time.

The following cases were selected from his records, as illustrative of the points he wished to bring out:

CASE 1.—Mrs. M., aged forty-seven, American, no syphilitic or hereditary taint, but a sister is reported to be a sufferer from chronic rheumatism. Married early in life, went on the stage, and, as a somewhat prominent actress, led an active and varied life, experienced many changes of fortune, travelled a good deal, and never hesitated to expose herself to wind and weather, yet always enjoyed good health until two years and a half ago, when, after a premonitory period of worry and depression of spirits, she experienced pains in both wrists and elbows, followed by swelling and distortion. The hands and feet soon followed, and, when he saw her first, Feb. 27, 1883, she had not a joint that did not creak or crack or was not out of shape, except those of the clavicle and the lower jaw. The knees and spinal vertebræ were in the worst condition and the most painful. Standing or walking, even with support, was out of the question. Her urine contained phosphorus, but no albumen. She slept poorly, and her general nutrition was bad; the bowels were irregular. No treatment had so far done any good, but the disease had made rapid and steady progress. Ordered :

R Propylamini (trimethylamini), f 3 j;
Oleosacch. citri, f 3 ij;
Aquæ, $\frac{7}{3}$ viij.

M. S.—A tablespoonful before each meal.

Ordered, also, two pills of sulphate of iron and carbonate of potassium after each meal; good food, and a tablespoonful of cod-liver oil three or four times a day. Galvanism to the spine and the cervical ganglia of the sympathetic three times a week. The local and general improvement had been so satisfactory that she was now able to get up and around with the help of a cane, and to do light work with her hands. The pain, swelling, and distortion of the joints were much less; sleep and nutrition were greatly improved.

CASE 2.—Mrs. K., aged thirty-four, German, married twice, had had two still-births and two abortions; second husband had syphilis, and died of phthisis. She presented no signs of either disease; no hereditary influences. In 1877-'78 she had a severe attack of bronchitis, that troubled her the whole winter, but eventually got well without any apparent damage to the lungs. After some years of trouble, anxiety, want, and exposure, arthritis deformans broke out two years ago, with pain and swelling of the small joints of the hands and feet, soon spreading to one knee, shoulder, and hip. The disease was preceded by severe headaches, from which she suffered yet occasionally, but less violently. Some of the joints presented a gelatinous feel, and several nodules could be felt beneath the integument of her arms. There was no pain on pressure over the sternum, the clavicle, or the tibia. Neither specific nor so-called anti-rheumatic treatment was of any service, but the disease has been very tardy in its progress, and the disfigurement of the joints was not to be compared to those in case 1. She had always been able to walk, though not without pain, and from time to time been confined to her room. Her appetite and general nutrition were not good. The treatment described in case 1 was begun in Jan., 1883, and carried out pretty regularly up to the present time, except as to the application of electricity. The result thus far had been satisfactory; the progress of the disease had been stopped; and the pain, swelling, and disabilities of locomotion were much less.

CASE 3.—Mrs. K., aged thirty-five, American; married, multipara. Father in good health, mother suffering from diabetes and

arthritis deformans. Patient well built and nourished ; living in good circumstances ; had been for some years very unhappy in her domestic relations, and been often deprived of rest and sleep, and otherwise maltreated. After a series of premonitory symptoms, such as hemicrania and neuralgia in the upper extremities, she showed the first symptoms of the disease in the fingers, wrists, and shoulders about a year ago. Her urine contained phosphates (in large amount) and a little sugar. The affection had made no great progress as yet, and the treatment had not been carried out well enough to be of great service, owing to irregular attendance on the part of the patient.

CASE 4.—Mrs. H., aged fifty-five, multipara ; no hereditary taint ; no apparent cause other than a good deal of anxiety and grief on account of the persistent ill-behavior of her only son. The first symptoms appeared in the small joints of the fingers and toes five years ago. So far, she had not experienced any great inconvenience from her affliction, but whenever she took the propylamine mixture and cod-liver oil for some time, great relief followed as to pain and swelling.

CASE 5.—Mrs. S., aged sixty-five, German ; married, multipara ; no hereditary taint, but a good deal of exposure to rheumatic influences in her younger days. The disease first attacked her right hip joint fifteen years ago, which led in the course of time to a shortening of nearly three inches, and now to complete ankylosis. No other joints had suffered until recently, when several small joints of the hands and feet became affected, and she had to take to her bed. Various sorts of treatment were employed to no purpose. For the last three months she had been taking propylamine, and the compound syrup of the hypophosphites, with the result that she was now able to be about again, and that no other joints had been attacked.

CASE 6.—Mr. G., aged sixty, Austrian, clergyman, single, of good constitution and no hereditary taint. He had served as a missionary in his prime, and had travelled extensively in South and Central America. He was, of course, exposed to the severe effects of unwholesome climates, and suffered many hardships besides. He had severe attacks of rheumatism, of which he got well, but eight years ago it settled in his right hip and left knee, and when Dr. Weber first saw him, five years since, he was in constant agony, confined to his bed for many months, and the joints mentioned presented all the characteristics of advanced

arthritis deformans. Some of the joints of his hands and feet had also become recently affected. His urine contained albumen in considerable quantity ; there were amblyopia, the ophthalmoscopic examination showing the affection of the retina often found in Bright's disease and atheroma. By the use of the iodides and the other remedies, he was but little relieved, but two seasons at the Hot Springs of Virginia removed the severe recent affections of the joints, relieved his kidney trouble, and considerably improved his sight. The old affections of his hip and knee remained as before, but ceased to give him much trouble, so that he was able to be about to attend to his clerical duties.

Dr. E. C. WENDT, in opening the discussion, said that he had seen a number of cases of arthritis deformans, mostly in hospital practice, all of which had, under the usual plan of treatment, gone on from bad to worse. He had also seen one of Dr. Weber's cases, in which a marvellous result had been obtained, in a comparatively short time, by an entirely different plan of treatment. He thought the value of Dr. Weber's paper lay mainly in the therapeutic suggestions which it contained. If other observers corroborated the ideas here advanced, a decidedly progressive step would have been taken. He thought it was important to elucidate the causation of the disease : mere symptomatic treatment was quite irrational.

Dr. C. L. DANA remarked that the few cases seen by him had not illustrated the neurotic origin of the disease. In New York the disease, he thought, was rarely met with in private practice. He had seen only a few cases in hospital and dispensary service ; this was even true in the Marine Hospital for Sailors, where rheumatism abounded. He recollects having seen one aggravated case : the patient was an old woman, some seventy years of age, who had suffered from the disease for sixteen or seventeen years. It began in the vertebral column, and gradually involved the hips, knees, and toes. She was so helpless that, in order to evacuate her bowels, it was necessary to place her in the horizontal position over a pail. She had Bright's disease, and died of apoplexy. On post-mortem examination deposits of urates were found in the joints of the great

toes. The patient was poor, and surrounded by all the conditions favorable to the development of the disease. Dr. Dana said he had seen some women of a neurasthenic type—women who had suffered from functional nervous disturbances—who developed a kind of inflammatory swelling of the fingers, so that in one case the hands became almost useless. He did not know but that, later on in life, these cases might develop into arthritis deformans, and, if so, would illustrate the theory advanced in the paper. In considering neurotic inflammations of joints, Dr. Dana thought the relation of the trophic nerves to them, if there were any trophic nerves, should not be lost sight of. Never, as far as he knew, had we found any articular disease following from functional nervous trouble. The nervous difficulty must be organic. In no experiment upon animals, except where an organic lesion of the spinal cord had been produced, had we been able to produce arthropathies.

Dr. WENDT did not know that the author's paper contained any evidence that the disease was developed from an organic lesion of the spinal cord. If there had been such disease of the spinal cord, improvement could not have been so rapid. He thought the neurotic condition was not the ultimate, but an intervening, cause. If we would go back sufficiently far into the history of these cases, he thought we should find that there was at first a disturbance of nutrition, on the basis of which the neurotic condition developed.

Dr. F. A. BURRALL wished he could add something to our knowledge of this subject. The disease was one we were continually meeting. It seemed to him to be an arthritis resulting from trophic changes. In two cases which he could now call to mind, these changes resulted from worry. One patient had gouty trouble. There was no uric acid found in the urine of patients suffering from arthritis deformans. As far as remedies were concerned, he knew of only two—arsenic, which was a nerve-tonic, and *Eupatorium perfoliatum* (boneset).

The PRESIDENT felt like adding a word in regard to the

practical part of the paper. He had not seen many cases of arthritis deformans in private practice; he could only recall five. It was probable that most cases were seen by the general practitioner. In the first four he had met with unsatisfactory results; but in the last, becoming convinced of the fruitlessness of the anti-rheumatic plan of treatment, he had administered cod-liver oil, iron, and static electrization with great benefit to the patient. He was of the opinion that the disease occurred most frequently in the so-called neurasthenic. It was interesting to note that the first advocate of the neurotic origin of the disease was an American, Dr. J. K. Mitchell, the father of Dr. S. Weir Mitchell, now of Philadelphia. At this very early date, 1834, Dr. Mitchell announced it as his theory that acute, subacute, and chronic rheumatism were diseases of the spinal cord. The neurotic theory of the origin of the disease in certain subacute forms was a very attractive one. He was prepared to admit, as an argument in its favor, that the ordinary anti-rheumatic treatment failed to relieve the patient. In the next place, there was a well understood relationship between the disease in question and well recognized nervous ailments. We had only to call to mind the arthropathies of the myelitis of traumatic neuritis in certain hemiplegiacs to find a defensible relationship to the changes in the joints characteristic of arthritis deformans.

A regular meeting was held November 6, 1883, Dr. WILLIAM J. MORTON, President, in the chair.

A case of clonic torticollis was presented by Dr. GRAEME M. HAMMOND, and a paper entitled "Points of Interest in Chorea" was read by Dr. HENRY D. CHAPIN, followed by an exhaustive discussion which we are unfortunately unable to present, owing to the failure of our stenographer to make a report as expected.

A regular meeting was held December 4, 1883, Dr. WILLIAM J. MORTON, President, in the chair.

NEUROTIC AFFECTIONS ACCOMPANYING JOINT LESIONS.
—Dr. GEORGE W. JACOBY read the following paper :

The history of the subject goes back as far as Hippocrates, by whom it is mentioned. John Hunter was the next

to take any note of it, and it is with him that the sympathetic theory originated. Malgaigne (1826) and, within the last ten years, Weir Mitchell, Duchenne, Verneuil, Sir James Paget, and Charcot and his pupils, comprise the list of names that have cast light upon the subject. The experiments of Valtat show conclusively that, as a result of injury to the articular or even to the peri-articular tissue, produced by irritant injections, the muscles of the entire limb, but more particularly the extensors of the joint, become atrophied. The result of the experiment given in the paper, as shown by the autopsy, is that the extremity which was experimented upon lost eighty grammes in weight in twelve days, and that each and every muscle separately weighed less than its corresponding fellow of the left side.

The affections which most frequently follow joint disorders are paralysis and atrophy of the muscles, and hyperplasia of the subcutaneous connective tissues. More uncommon are anaesthesia, hyperaesthesia, analgesia, hyperalgesia, and neuralgias. Three groups of nerve functions are implicated—motility, sensation, and nutrition.

Symptoms.—After the joint lesion, there is a change in the appearance of the limb. The extensor muscles are generally the ones involved. There is a change in the electrical reaction of the muscles; their contractile power is diminished, and finally lost. There is no reaction of nerve degeneration, no reversal of the normal contraction formula. This is also most noticeable in the extensors. The paralysis may appear as early as twenty-four hours after the accident; it may also appear very late. The hypertrophy of subcutaneous connective tissue seems to stand in a direct ratio to the atrophy of muscular substance. The atrophy is ascending and progressive. Contracture is rare. The disorders of sensation are early symptoms, and the differential diagnosis between these affections and progressive muscular atrophy may become difficult.

The conclusions which I am entitled to draw from the notes of thirty cases are: 1. That in all cases, except those involving the ankle or wrist joint, the muscles affected were the extensors of the diseased articulation. 2. That, in

those cases which involve the ankle or wrist joint, the affection is descending instead of ascending, and that the extensors are not affected to any greater extent than the other muscles. 3. That, in cases of arthritis of any of the joints of the fingers, the interossei muscles suffered first and most.

The cases which present particular interest are the following :

CASE 1.—Mrs. L., aged twenty-four, while walking, slipped and fell, striking her right knee. The joint rapidly increased in size and was very painful. The following day it was very much enlarged, the patella pushed forward, and fluctuation was distinctly noticeable. The joint affection improved rapidly, but upon the seventh day a distinct paralysis was noticeable. The movement of flexion of the leg upon the thigh was easily executed, but that of extension was performed with great difficulty. Patient could only by the strongest effort produce any contraction of the triceps cruris. As the effusion became absorbed the paralysis increased, and at the end of three weeks it was impossible for her to extend the leg at all. Atrophy was now well marked, showing a difference of three centimetres in favor of the healthy limb. The gluteal muscles were also involved. The electro-contractility of the muscles was decreased to both currents.

CASE 2.—This case shows how soon after the injury paralysis and atrophy may ensue. Patient, a laborer, aged thirty-four, was struck upon the left knee on a Friday afternoon. He applied ice to the joint. The swelling went down. I saw him on the following Monday, seventy-two hours after the injury, and then a distinct paralysis of the triceps was noticeable, and atrophy was distinguishable upon the following Friday.

CASE 3.—By this case may be seen how entirely disproportionate the effect may be to the cause. Patient, L. H., merchant, aged thirty. While walking, his left ankle joint turned, the outer margin resting upon the ground. Notwithstanding severe pain, he continued his walk. Used the joint for several hours. When he examined his foot he did not notice any change in the appearance, but it was painful on pressure. After two months he noticed a slight weakness in the injured leg, which was particularly observable upon going down stairs. Four months after the accident I saw him. His condition was then as follows : His foot hangs with the toes pointing downward, and cannot be brought to a

right angle with the leg. He walks upon his toes, and does not bring his heel to the ground. The toes may be easily raised, but they fall back again by their own weight. The interossei muscles of the foot are atrophied. The peroneal muscles and those of the thigh are also involved. The gluteus maximus is evidently considerably atrophied, for a large depression takes the place of its former prominence. Added to this, severe neuralgia of the sciatic and peroneal nerves rendered his condition almost unendurable.

The pathogenesis of the affection is still a disputed one. The sympathetic of Hunter, the pressure theory of various writers, the theory of functional inertia, then that of Vulpius, which is reflex, and, finally, those of Decosse and Charcot, are all incapable of satisfactorily explaining all of the cases.

The treatment, in order to be successful, must be varied and adapted to each special case. The chief agents at our disposal are electricity, massage, mechano-therapeutics, and hydro-therapeutics in the form of hot and cold douches. Massage, in very many cases, seems to deserve preference to the electrical currents. The effects producible by massage are:

1. The diffusion of any articular effusion ; 2. The comminution of vegetation ; 3. The loosening and destruction of adhesion ; 4. Increase of circulation ; 5. Stimulation of muscular fibres.

In fact, all the agents above mentioned seem to act similarly by stimulating the nutrition of the affected muscles, by increasing the flow of blood to the parts, and perhaps thus causing a reflex excitability of the motor tracts.

Dr. CHARLES F. TAYLOR said the subject was one with which he was familiar, as all persons engaged in the treatment of joint affections must be, but it was too large even to touch upon, in many of its aspects, in the limited time at his disposal. He was obliged to differ with the essayist, both as to the pathology and as to the treatment of the neurotic disturbances attending or following joint diseases of the character which he had set forth in the paper. In regard to the pathogenesis, he did not think it necessary to

adopt any peculiar theory, or to assume that even any special deviation from the ordinary course of nerve function took place, in order to account for all the facts observed in these cases. The difference was one of degree only. A person was attacked with inflammation of the knee joint, for instance. This was rapidly followed by diminished size of the muscles controlling the action of that joint, with diminution and sometimes even entire loss of muscular action. But loss of muscular action was by no means evidence of loss of muscular power. The nerve-centres were unquestionably affected, but the cerebral nerve-centres were the seat of the greatest disturbance. No theory could be adequate which left the cerebral nerve-centres out of account, and the consequent mental element, which played, in his opinion, so important a part in these cases. The simple loss of muscular action, consequent on an attack of inflammation of the knee joint, was sufficient to account for an immediate diminution of the size of the muscles whose freedom was curtailed. This was the certain result of mechanical restraint alone. But if, besides the mechanical restraint of position or retaining apparatus, there were added the mental restraint of fear, the difference in the rate and amount of muscular atrophy was enormously increased. Mental restraint acted like an Esmarch's bandage : it squeezed the very life out of a muscle. As a very simple proof of the remarkable effect of mental restraint in causing muscular atrophy, he would mention those frequent instances accompanying disease of the hip joint. These patients often applied with limbs attenuated to the last degree. That a large portion of the muscular attenuation accompanying somewhat long-standing hip-joint disease was due to the mental restraint of motion, which might cause suffering, was proved by the fact that the application of proper mechanical protection, by which the mind was relieved of the fear of pain, was followed by immediate increase of muscular growth. This was so common and well-known a fact that advantage was constantly taken of it in the management of cases. His observation of the effects of joint diseases on the muscles must have included some thousands of cases, and he had never seen a case of

atrophy which, in his opinion, could not be perfectly explained by non-use and mental restraint.

In regard to the therapeutics of muscular atrophy and loss of action following joint disease, he feared he must differ with the essayist quite as widely as in regard to their pathogenesis. So far as the muscular wasting had been caused by non-use, during the progress of the arthritis, it was sufficient to set the muscles to work again after the inflammation had subsided. Muscles stubbornly refused to act, or, if forced to act, they as stubbornly refused to develop, during the progress of an arthritis. We must wait till the joint was well before we could expect the muscles to act readily. It was astonishing to notice how deep and lasting the impressions made on the cerebral nerve-centres sometimes were. Whatever the treatment might be, he did not believe it could be of any direct service so long as a mental restraint over the muscles was continued; and it was equally true that whatever would remove such mental restraint would cure the atrophy. So important did we consider the mental influence over the muscles, attending and following joint diseases, that we took special pains to get and keep the direction of that influence, for the very purpose of hastening the recovery of the muscular power, after curing the joint disease. But the object of treatment should be to divert the mind from the affected member, rather than to keep up attention to it, by local treatment. It was true that massage would sometimes seem to do much good to the atrophied muscles; but this was apparent and indirect rather than real and direct. Massage had elements of mental diversion and control which might be properly and usefully employed. But, with a large experience in its use, he was free to say that he thought it was very much overestimated as a direct therapeutic agent. Its direct effect on the muscles was very slight, and what there was was not exercise. Exercise involved nerve action as the initial force. Massage merely assumed to promote the forward displacement of a certain small portion of the tissue fluids. But such propulsion of the fluids contained in the soft parts, even if effected, was not exercise, nor a rational substitute

for exercise. Only by the legitimate use of the nerve-centres, especially of the cerebral nerve-centres, could there be any action deserving the name of exercise. To regulate such nerve-centre function, when disturbed by the strong impressions made by joint inflammations, was the indication presented in the cases under discussion. In most cases time alone was sufficient. In others any means which effected a diversion of attention, whether applied to the affected member or at a distance from it (which was the safer plan), would effect a cure. Incidentally, massage, electricity, the manipulators of the so-called "bone-setters," as well as the "animal magnetism" of the more arrant quacks, all did appear to produce wonderful results in a certain number of cases. The results were real, but were not produced through any direct effect on the parts, but through the incidental impressions made on the cerebral nerve-centres; in other words, on the mind. The worst of it was a large number of cases in which direct treatment of the part affected by the mental restraint tended to increase the mental impression, and to indefinitely postpone that unrestrained action of the muscles by which alone they could regain their power. The most difficult cases within his experience had been those in which the patients had had their attention to the affected member kept up by too much local treatment after the joint inflammation had passed away.

Dr. LEONARD WEBER had seen some cases of muscular atrophy following joint disease, and remembered one in particular, which might be of interest to the Society:

Mr. J. W., aged thirty-two, merchant, of nervous temperament, but strong and active, made a tour through Switzerland in the summer of 1879. Being a good pedestrian, he travelled mostly on foot, but, after a severe Alpine tramp in the upper Engadine, he was taken with synovitis of the knee joint. When the effusion had passed away, the extensor muscle above the knee had wasted considerably; the patient was unable to walk, and reached New York with difficulty. On examination, the joint was found to be in good order again, but the atrophy of the extensor muscle was still very marked, and the patient, by the support of a cane,

walked, but not without difficulty. A four weeks' course of faradization made no appreciable change, and, although he was assured that he would regain the use of his limb completely in the course of time, he was not satisfied, but grew despondent, and finally left for Europe to consult Professor Erb. The latter told him the paralysis was not in his limb, but in his mind; that he should go about and exercise and live well, and he would soon regain the full use of his muscles. He followed this advice, and returned to New York early in the spring of 1880, in perfect health.

As to the pathogenesis of the disorder, Dr. Weber believed that the muscular paresis and atrophy in the case reported, and in others of a like character, were of reflex origin, and that functional disturbances of motor centres in the brain, and not in the spine, were probably the cause of the trouble. Of massage and its effect in such cases, as reported by the author of the paper, he had had no personal experience, but had seen excellent results from its proper application in subacute joint diseases, muscular rheumatism, and bad sprains.

Dr. E. C. WENDT said that the paper had brought out several points of interest, especially as regarded ætiology, symptoms, and the hopefulness of treatment. He was sorry to find, however, that the reader had nothing new to offer in explanation of the pathogenesis of these conditions. Admitting the correctness of Sappey's views concerning the richness of the articular and periarticular tissues in nerves, it certainly seemed thoroughly puzzling why acute polyarticular rheumatism was not more frequently followed by just such accidents as Dr. Jacoby had described. Again, those more chronic joint manifestations dependent upon the gouty diathesis, where profound structural alterations were frequently observed, only quite exceptionally led to atrophy, paralysis, and the other neurotic disturbances alluded to. Upon these points he was sorry to find that the paper under discussion left us as much in the dark as we had been before.

With regard to massage, although his experience was limited, it was yet sufficient to fully convince him of its utility in certain cases. Of course, there was massage

and massage; but, when properly and systematically applied, it was useless to try now to dispute its beneficial action. The combined experience of a large number of competent men placed its usefulness beyond the pale of doubt.

Dr. C. HEITZMAN said: "When I was a student in Vienna, a girl, twenty-five years of age, fell down stairs and acquired serous gonitis, after which she was paralyzed and confined to her bed for five years. She was sent to a water-cure. A physician there urged her to walk, in order to enable him to judge about the degree of the disease, but she began crying, and said she was unable. She went home in despair. Her sister urged her to make at least an effort to walk. After considerable urging, she got out of bed and walked. This illustrates that mental influence has much to do with these affections.

"I would call the attention of Dr. Jacoby to an article by Dr. Nicoladoni, published, in 1871, in the *Wiener med. Jahrbücher*. I have seen his specimens, with the nerves brought out by the use of chloride of gold, and, from my observation, I am convinced that these terminal nerve-fibres are not stable and unchangeable formations, but, on the contrary, that new nerve-fibres may form at any time of life from the living matter present in all tissues.

"I am thoroughly convinced that nerves may disappear and appear, according to certain physiological necessities, certain physical conditions of the body, such as, for instance, are results of exercise.

"In an inflammation of a joint, the synovial and capsular wall being the seat of pathological changes, of breaking down of tissue, certain nerve-fibres of the sensitive sphere will be within its range, and we should know that a certain number of them perish altogether.

"Dr. Jacoby, to-night, did not give a theory of his own, but quoted various authors. It certainly was the best plan for him to pursue, as so very little is known, even in our day, about nervous action.

"We know that, by the inflammatory destruction of a number of sensitive nerve-fibres in the capsule of the joint,

at once three spheres are involved: the motor, for there is paresis or paralysis; the sensory, for there is pain; and the vaso-motor or trophic, for there is emaciation.

“So far as my insight goes, I am convinced that the living matter in a reticular arrangement produces the gray matter and all essential portions of nerves, including the axis-cylinder. This fact is thoroughly acknowledged by Professor Stricker, of Vienna.

“There may be a loss of living matter of certain nerves, in consequence of inflammation, and loss of contractility, with impaired conduction toward the centre. We then have comparative rest in a limited portion of the spinal cord, or even the brain, for the reticulum of living matter is set at rest for a time, without there being a material change in the living matter of the gray substance and ganglionic elements.

“If massage will re-establish the activity of the muscles, we are prepared to understand that the field in the spinal cord before out of action may at once be brought into motion, and the motion communicated at once to the motor ganglia and all the sympathetic centres which are situated along the spinal cord, as physiologists agree.

“The nervous action may for a certain time be impaired or dulled, because the reticulum of living matter is in comparative rest, lacking an impulse from without. So soon as such an impulse is carried to the resting portion, either by mental action, energetic will, or mechanical shock, as is done in massage, or in any other way, the contraction of the living reticulum is induced, and the normal condition re-established. Neither the assumption of centripetal neuritis, nor the theory of reflex action, can explain the phenomena observed after the inflammation of articulations and their occasional speedy cure.”

Dr. HENRY L. TAYLOR said: “I can contribute a case, showing the beneficial effect of the use of the body battery:

“A woman, under the care of Dr. J. West Roosevelt, at the Roosevelt Hospital Dispensary, of middle age and neurotic personal and family history, presented among other symptoms that of

a prickling sensation down the right arm and in the right hand. There was no joint trouble. Dr. Roosevelt and myself regarded it as one of the neurotic disturbances incident to a person of her temperament. The body battery was tried for its psychical effect, and the woman returned in two days, with the abnormal sensations gone. The symptoms had lasted a considerable time. The same treatment was applied to the hand, without effect, during the week which she has since been under observation.

“ I regard the result in this case as entirely due to mental influence.

“ Before concluding my remarks, I wish to speak of an interesting class of cases alluded to by Dr. Gibney—the pseudarthroses. We have in these cases nearly or quite all the symptoms enumerated by Dr. Jacoby in his paper—atrophy, hyperæsthesia, or anæsthesia, etc., following mental restraint, there being no affections of the joints. I regard the trouble as functional and seated mainly in the brain, and not in the spinal cord, as Dr. Gibney believes, if I understand him. Almost any thing calculated to make a profound impression on the higher nerve-centres will often prove curative in these cases. This is, in my opinion, one of the most important effects of massage.

“ I have in mind three cases of ankle trouble following sprains, seen three to five months after the injury. The acute symptoms had subsided, but pain, tenderness, and such impaired function as to cause limping persisted. These patients had been treated with supports, etc., for several months. Physical examination showed no local trouble not readily explained by mental inhibition. There had been recovery from the sprain, without a corresponding readjustment of the nerve-centres to the new condition. The patients were perfectly and rapidly cured by psychical treatment. I do not doubt that massage often accomplishes the same result through its pyschical effects in similar cases, but it is an empirical method, as generally employed.”

Dr. HENRY J. GARRIGUES said: “ What little experience I have had with massage is in its favor, but that is almost nothing compared with that of Dr. Taylor. Nevertheless, I have used massage for ten or twelve years. I be-

came acquainted with it when it was quite new, and have found it most excellent for secondary conditions and for the affection to which Dr. Jacoby alludes."

The PRESIDENT said: "I will say a few words upon the subject of the continuous body battery and its use; the battery consists of a simple pair of elements. I well recollect a case in which I used this with good effect. A gentleman came to me with chronic arthritis. Associated with it was paralysis of the extensor group of muscles; the foot was dropped and the toe dragged; he said that no form of electricity that he had tried had done him any good. I told him I would give him a battery which he could wear all the time, which consisted of pieces of silver and zinc connected by copper wire. The zinc was shifted about upon different parts of the body, and a constant current was kept up, which could be tested at any time with ordinary litmus paper. While he was under alkaline treatment the battery worked with better results, the excretions being saline.

"This battery is also useful in the treatment of chronic ulcers. The granulations formed will be found more healthy. It is also beneficial in chronic eczema."

This much he would add to the practical part of the paper, since the main question, after all, was as to treatment.

Dr. V. P. GIBNEY said at times it was very difficult to determine whether the atrophy preceded or followed joint disease. It was his opinion that it was more frequently the accompaniment of epiphyseal disease than of joint disease proper, and he wished to emphasize the fact—for a fact it was, according to his observations—that the majority of grave lesions about joints in childhood were epiphyseal—in other words chronic epiphysitis.

Synovial disease he believed to be rare. If one examined a hip, for instance, said to be the subject of disease, marked atrophy was usually found in the thigh and calf muscles long before any pronounced joint symptoms were present. The atrophy, he further stated, was confined to the muscles and not to the bony tissue, for it was a rule that in chronic epiphysitis, about the knee for instance, the epiphysis was

actually elongated. He, in common with many other orthopaedists, had long regarded acute atrophy as one of the most constant signs of chronic articular osteitis, and he believed the atrophy to be purely reflex and not the result of disease, or of the pressure from apparatus or bandages.

One argument brought against mechanical treatment—viz., that atrophy was produced—was fallacious. The clinical history proved this conclusively. He was not sure whether chronic synovitis induced atrophy, but he was positive that in acute synovitis atrophy was rather the exception than the rule.

A class of cases presented certain neuroses which were very valuable in excluding bone or joint disease. They were known as spinal pseudo-arthropathy, and known, furthermore, as neuroses of the joint, neuro-mimosis, hysterical joint, Brodie joint, etc. The neuroses referred to were neuralgia, hyperesthesia, anaesthesia, but rarely any atrophy. He believed that they had their origin in the spinal cord and the meninges, and the readiness with which they responded to treatment confirmed him in his belief.

Furthermore, the neuralgia of chronic articular osteitis of the hip was well known, and the knee branch of the obturator never was affected early, and very often late in the disease, although this was denied by some writers, and especially a recent writer, Dr. Clippingdale.

In some of the most advanced cases of caries of the hip this obturator neuralgia was very distressing. Very frequently the sciatic nerve was involved, and in some cases the sciatica was most intense, and yielded to treatment with great difficulty.

The theory of paralysis and degenerative nerve changes being sequences of chronic arthritis was one about which he did not feel fully convinced. He referred to a case of chronic arthritis of the knee in an old woman who had paralysis of most of the muscles of the thigh and leg, in which it was thought by some who saw the case that the paralysis was dependent on the joint lesions, but the proof was not by any means conclusive.

Dr. JACOBY said: "The first point to which I desire to

reply is that brought forward by Dr. Taylor. He said that he believed these nervous changes, particularly the paralysis and atrophy, were produced by pyschical or mental influence, and that they might be relieved by attention to this point. I am at considerable variance with him as regards the effect that mental influence has in the production of these disturbances. I, for my part, can not understand how mental uneasiness can produce an atrophy, which is easily diagnosticated with the tape, of a certain muscle, and that in the short space of three days. But, as the doctor has promised us a paper upon this subject, perhaps that will succeed in convincing me.

“ As regards the oposition which the massage treatment has received, I expected it would receive more. Massage has, especially in the United States, been very much in the hands of non-professional men, and, consequently, has been greatly abused and misapplied, but I hardly think there can be any question as to its efficacy in suitable cases and when properly applied.

“ The theory advanced by Dr. Heitzman is very similar to that of Professor Charcot, who, as I mentioned in the paper, believes that certain parts of the cord are in a state of inertia or stupor.”